Nutrition News

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BREAKFAST WITH HIGH-QUALITY PROTEIN

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Application of the recent findings in the field of animal nutrition to the problems of human nutrition is the research worker's constant responsibility and challenge. Such application may require many modifications of methods and interpretations in order to make it suitable for human subjects. A recent example of this type of application is the nutrition study which was made on fifteen college girls at the University of Nebraska for the purpose of investigating protein utilization.

Work with rats and dogs indicates that in order for the body to utilize protein for tissue synthesis all of the essential amino acids must be present simultaneously and in adequate amounts. If even one essential amino acid is absent, or is present in insufficient quantity, this deficiency will limit the utilization of the other amino acids. Thus the determining factor in utilization becomes the extent to which each amino acid is present in sufficient quantity. When incomplete proteins, which do not contain all of the essential amino acids, are metabolized, they supply the animal body with some of the essential amino acids. These acids, however, are neither used nor stored to be used later when the other essential amino acids are supplied from other food sources. Instead they are oxidized and the nitrogen portion is excreted. Dr. Paul Cannon summarizes these findings by saying "The synthesizing mechanisms operate on an all or none principle and are perfectionistic to the extent that if they can not build a complete protein they will not build it at all."

Human Nutrition

What, then, do these findings from animal experimentation suggest in the field of human nutrition? Perhaps the nutritional efficiency of high-quality proteins of milk and meat may be a result of their furnishing all of the essential amino acids generously and simultaneously. If this is the case, should the high-quality proteins be supplied in every meal during the day rather than being supplied only once during the day? Breakfast is the meal which contains the least amount of protein and may lack any protein of high quality. There is the possibility that such a meal may seriously hinder nitrogen utilization, even though the total daily protein intake is adequate.

To investigate this problem a study was planned to compare the nitrogen utilization of human subjects during two different periods when the food intake was identical but the distribution of the protein in the daily meals was different. This was done by varying the quantity and quality of protein in the breakfast. Milk offered the practical and usually acceptable form of a high-quality protein food which could be included in a breakfast menu without adding undue quantity, expense, or labor.

Plan of Study

Fifteen college girls volunteered to be subjects during the summer of 1948. A small dormitory was rented and the research staff served as housemother, dietitians, cooks, and chemists. During the entire thirty-six days of the experiment, the diet furnished the recommended allowances of protein, minerals, and vitamins. For the first eighteen days the breakfast menu included fruit, bread products (made without milk) and coffee. All of the high-quality protein was served at the noon and evening meals. Some of the protein was supplied by one glass of milk at the noon meal and two glasses at the evening meal. The menu for the second eighteen days was exactly the same except that one glass of milk was taken from the evening meal and added to the breakfast. Thus, the daily protein intake remained constant throughout the thirty-six days. During the last half (nine days) of each of the two periods, the absorption and excretion of nitrogen was measured quantitatively for each girl and the results for the two periods compared.

Dr. Leverton

Results of Study

The results suggest that even though the daily protein intake was the same during both experimental periods there was a tendency for the girls to use more of the nitrogen available from the protein during the period when milk was included in the breakfast than when there was no milk in that meal.

Further study needs to be made of the relation between the distribution of foods furnishing high-quality protein in the daily meals and the protein or nitrogen utilization in human subjects. These results, however, suggest that at least until we know more about the body's needs for having all the essential amino acids present simultaneously and in adequate amounts, we would be on the safer side to include some high-quality protein in every meal.

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Glances AT NUTRITION RESEARCH

Research workers are coupling their exploration for more nutrition knowledge with its practical application to all people. The work reviewed here is but a small segment of the wide range of studies in progress.

Cholesterol—An attempt to evaluate the significance of the cholesterol content of the diet in normal persons and in patients with coronary arteriosclerosis has been made. A study of patients with this type of heart disease revealed that the level of cholesterol in their blood serum was higher and inconstant in contrast to lower and more stable values in normal individuals of the same age group. However, it was shown that, within the limits of the study, altering the cholesterol content of the diet did not significantly vary the serum cholesterol level. Preliminary results indicate that large amounts of dietary cholesterol can be absorbed by the body without raising the cholesterol content of the blood serum, or without clinical evidence of cholesterol deposition in the tissues.

—New York J. Med. 48 :1814 (Aug.) 1948.

Vaccenic Acid—Previous research indicated vaccenic acid, a substance in butter, had special growth-promoting properties for rats. Extensive work on vaccenic acid, recently completed, could not confirm any growth-stimulating powers of the substance. However, this work has confirmed the presence of something in butterfat at certain seasons of the year which may be a definite compound or a fraction rich in certain favorable fatty acids.

—J. Nutrition 35 :761 (Dec.) 1948.

Protein Time Factor—A recent study confirms previous experiments that incomplete amino acid mixtures cannot be stored in the animal organism, and that protein synthesis occurs only when all the essential amino acids are simultaneously available. In addition to experiments with pure amino acid mixtures, various natural proteins lacking in one or more essential amino acids were fed to rats. Proteins of low biological value exhibited a supplementary relationship, shown by satisfactory growth in the rats, only if fed together and not if fed separately with lapses of time between feeding.

—J. Nutrition 35 :813 (Dec.) 1948.

Thiamine Requirement—Infants were used in a recent study of thiamine requirements because their metabolism is not complicated by intestinal synthesis of vitamins or antivitamins as is the adult's. Thiamine requirements varied between 140 mcg. and 200 mcg. per day for the seven infants studied. Based on an average content of 35 mcg. to 40 mcg. of thiamine per 100 ml. of cow's milk, formula for an infant weighing 7 kg. would contain 300 mcg. of thiamine a day, well over the 200 mcg. required daily. Pasteurization and sterilization of milk formulas would decrease slightly the total thiamine present.

—J. Nutrition 37 :53 (Jan.) 1949.

TIMELY TOPICS

Dr. Leverton

Dr. Leverton, author of this issue's lead article, has an outstanding record for research in human nutrition since she joined the home economics staff of the University of Nebraska in 1937. She received her doctorate at the University of Chicago. In 1942, as one of the senior leaders of the North Central States Cooperative Nutrition project, she received the Borden Award in Home Economics research. Her research includes calcium, phosphorus, and nitrogen metabolism of young women.

Mobile Health Units

Four mobile field units of the U. S. Public Health Service are operating in different areas of the country to study the nutritional status of population groups. They propose to help state health departments improve health by developing and demonstrating methods of nutritional appraisal; to determine nutrition deficiency diseases in various areas; and to provide nutrition training for health department personnel.

Breakfast Survey

A nation-wide survey of one day's breakfast of 80,000 high school boys and girls has just been completed for Scholastic Magazines. Of the boys, 45 percent drank milk as a beverage, 51 percent ate butter, 39 percent ate eggs, and 41 percent had fruit. The girls consumed less milk, butter, and eggs, but more fruit. Sixty percent of the girls and 75 percent of the boys "always" eat breakfast at home.

NUTRITION SERVICE FOR COLLEGE STUDENTS

By Charlotte M. Young, Associate Professor of Medical Nutrition
School of Nutrition, Cornell University

Since 1942 Cornell University has had a nutrition service for students. It is a cooperative enterprise of the School of Nutrition, the Department of Clinical and Preventive Medicine, and the New York State College of Home Economics. The idea behind the service is one which could be adopted in any institution where medical cooperation could be arranged.

The nutrition service is made up of two parts: nutrition consultation at the Student Medical Clinic and the operation of a special diet table. The former is carried out at the Clinic by the nutritionist where patients are referred to her by her colleagues on the medical staff. She, being a staff member, has access to all medical records. She sees the student as often as indicated. The service is not only therapeutic aid but it is good health education, for the student receives help at a time when he is ready to listen. The presence of the nutritionist as well as the results achieved with students serves as a means of educating the staff to think in nutritional terms.

Contact Early

As the result of a student suggestion, for the last several years the nutritionist has attended the mass physical examinations for entering students. At this time, with the medical staff, she can pick out for especial attention those who appear to have nutritional problems. By making appointments on the spot a student can be given help early in his college career and much preventive work can be started.

The special diet table was set up soon after the Clinic service. Here 15 to 20 students, men and women, from all classes and colleges of the University may be given further dietary help. Here we can educate by actual seeing and eating. A student learns what an adequate diet is by eating it and what the experience of eating it will do for him. It is an "in-service" education in what constitutes a good diet. Case material from the diet table offers a wonderful means of demonstrating to the student himself, to classes, and to graduate students what can be done by an adequate diet in even as privileged a group as Cornell students. When one sees the results he can't help believing in the power of good feeding. Always, of course, the confidential relationship with the student must be protected.

Other Advantages

In addition, the diet table offers what might be called emotional support to students suddenly faced with special dietary problems. He finds he is not alone. He can carry on a perfectly normal program without dietary worries while he learns his new routine. Then, too, the table can serve as a valuable supportive measure during periods of stress. Some individuals with gastrointestinal difficulties during stress periods could become more or less permanent "dietary cripples." At the diet table, under circumstances away from the hustle and bustle of the dormitory, and with the understanding guidance of a good dietitian, the student can be "nursed" through his difficulties and taught to adjust his eating to his stress. Gradually he finds himself eating a good, well-rounded diet instead of being off certain foods for life. Also there are individuals who need dietary restrictions of one kind or another, but who temporarily have many other problems to face. Making the food choices necessary to meet the restriction may be just one problem too many at the moment. Temporary assignment to the diet table where food choices are made may be of tremendous value.

The diet table has other values to the institution. It is reassurance to anxious parents, a good public relation instrument. It may also serve as a source of material for research. The operation of a nutrition service for students is an exceedingly satisfying job. The fun of helping young people to help themselves brings its own reward in personal satisfaction.

FOOD HABITS IN LEBANON

By Marcella A. Beffa, Dietitian, American University of
Beirut Hospital, Beirut, Lebanon

Beirut and Lebanon always seemed so far removed from my life . . . in fact I had never heard very much about Lebanon. The wanderlust took a firm grip on me and as a result I found my way to this small republic.

We may be inclined to think of the Arabs and Near Easterners as different people, but in many respects they are very like Americans. One notable difference is in the dress. It is a common sight in the streets, even in cosmopolitan Beirut, to see the men in baggy pantaloons with colorful cummerbunds and shirts and the red tarboosh. The moslem women never appear without the black veil and black dress. The Bedouins add color, with the women in gypsy-type dress and the men with their abias (flowing robes of black and gold of camel's hair cloth).

Much of Lebanon is mountainous and in the mountain villages the people raise cattle, donkeys, goats, and sheep. Because of the demands for milk, cattle are on the increase.

Lebanon Food

Food to an Arab is an important item. In spite of this, kitchens are small, poorly planned, and poorly equipped because almost everyone from the middle class and up has a maid. Most of the Arab dishes take hours of preparation and are mixtures of various foods. In the early morning Turkish or Arabic coffee is served; then at breakfast many have hot milk. You must boil all milk because of the prevalence of bacteria in the soil, water, and food. Pasteurization is in its infancy. It is amazing how easily you become accustomed to hot milk.

No table is ever complete without cheese, olives, lebni, and leban. Leban is made from whole milk that has been coagulated. The milk is boiled, yeast is added as a starter, and then it must set for 10 to 12 hours. It should then be placed in the refrigerator and kept cold. Lebni is the leban with the whey

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DID YOU KNOW ?

—that pies with an ice cream "crust" are now on the market?

—that, although data is meager, it appears that the average length of life of prehistoric man was 18 years?

—that more flavors in cheese are produced from milk, a bland food, than from any other individual source?

—that in England, school lunches rate second only to hospitals in food priority?

—that 9.77 quarts of milk are required to make a pound of butter?

—that in 80 A.D. a dose of finely ground, cooled lava from Mt. Vesuvius was a cure for indigestion?

—that the quantity of milk produced annually in America would fill a river 3,000 miles long, 3 feet deep, and 40 feet wide?

—that hot school lunches are available for the first time to school children in Kodiak, Alaska?

—that a fortified powdered milk product has been developed for persons of advanced years?

THINGS YOU'LL LIKE TO READ

Danger! Curves Ahead!—Dr. Miriam Lincoln, M.D. The Macmillan Company, New York, New York. 1948. $2.50.

Dr. Lincoln tells those who are putting on too much weight how to reduce and points out how overweight can endanger good health. She uses the National Dairy Council **Guide to Good Eating** to show that a reducing diet is only a low-calorie version of adequate daily meals.

How Families Use Their Incomes—USDA MP653. Superintendent of Documents, Government Printing Office, Washington 25, D. C. 1948. 30 cents.

This pamphlet describes how families spend their incomes. It was prepared for the use of social workers, group leaders, and teachers in aiding families to make satisfactory adjustments to changing economic circumstances.

Helping Families Plan Food Budgets—USDA MP662. Superintendent of Documents, Government Printing Office, Washington 25, D. C. 15 cents.

Social welfare and nutrition leaders and teachers who give individual help to families will find useful this bulletin. Master food plans and market orders are given at moderate and low cost levels which can be adapted to a range of age, sex, and activity groups.

Outlook for Bread and Flour Enrichment—Committee on Cereals, Food and Nutrition Board, National Research Council, Washington 25, D. C. 1948.

A study conducted jointly by the U. S. Bureau of Agricultural Economics and the University of Wisconsin shows that two-thirds of the bakers in business ten years or more used the same proportion of milk solids in their formulas in 1947 as they did in 1939. Enrichment has not affected the use of milk solids in making bread.

FOOD HABITS IN LEBANON

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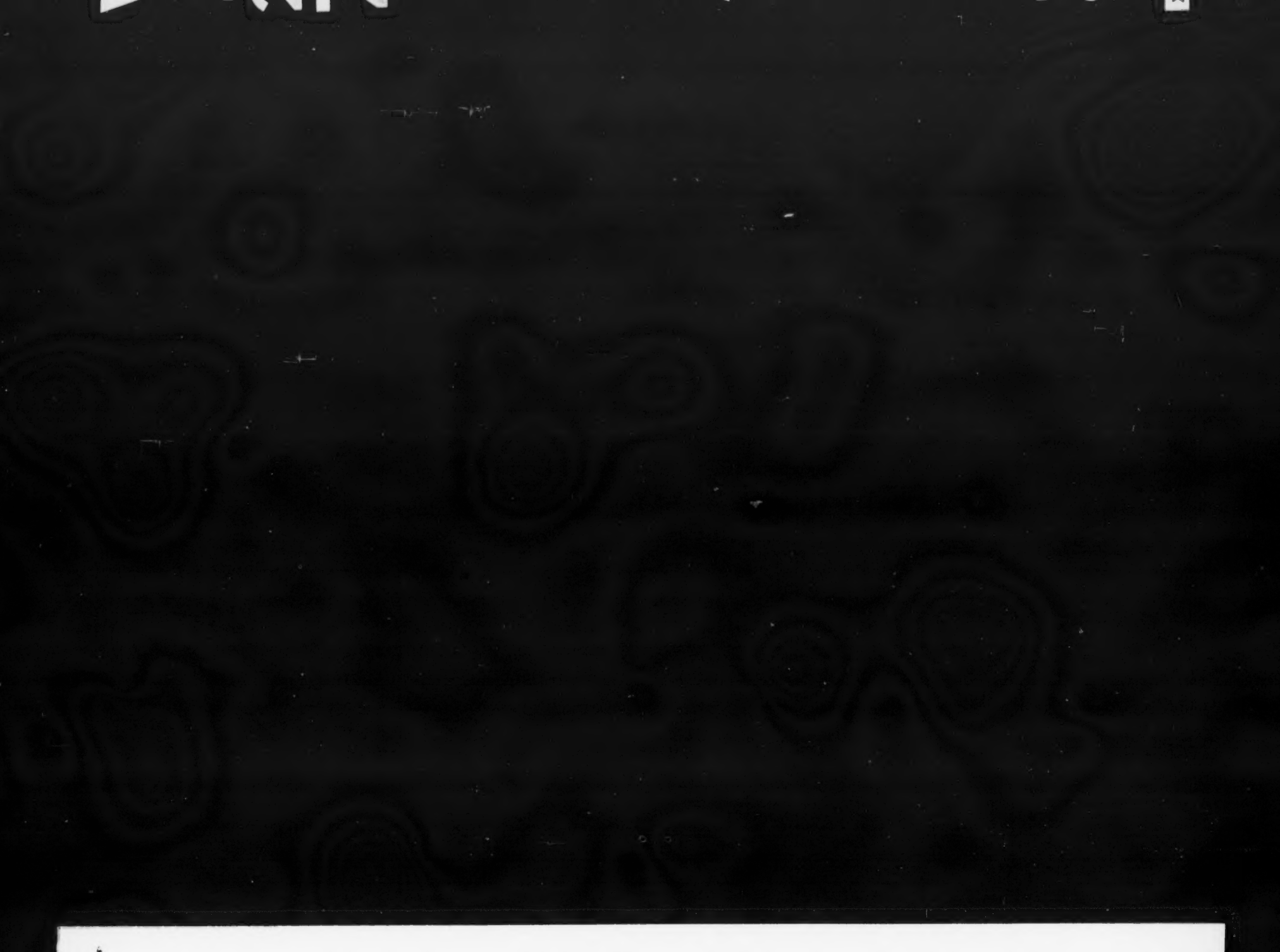
removed. Lebni is the same as yoghurt that we have in the States. It is not uncommon to see people eat 300 to 400 grams of lebni at a time, plus a full course dinner. It is usually mixed with olive oil, but I still prefer mine plain.

Cheese dishes with bread are breakfast favorites too. The Franjys (foreigners) have introduced the custom of eggs for breakfast, and butter is preferred by the Christians. Bread is the backbone of the diet in this part of the world. They have tasty, round, flat loaves which are used to scoop up foods such as lebni, olives, cheese, and meat.

The Main Meal

Noontime calls for the main meal of the day. Meats, preferably mutton, are often mixed with burghl, a whole wheat product, to make Kibbee. A heavy mutton fat, called Semnah, is one of the national dishes. And stuffed vegetables with meat and rice, which the Arabs call Mashi, is another of their favorites. Any Arab is bound to be happy with these, but again don't forget to keep lebni and leban and cheese and olives at hand. Rice forms the basis of the diet and is served with all yeckneys (stews). Vegetables are rarely served plain, they are much preferred raw or stuffed. Many times meats and vegetables are cooked in leban. You must be sure to offer cheese, then a milk pudding is acceptable, but never forget the fresh fruit.

Ice cream is not eaten to any great extent in winter or in summer. You would easily understand if you ever tasted what is called "ice cream." It is mostly arrowroot and water with flavoring. Homemade ice cream with 40 percent cream and whole milk would be preferred here, I am sure. I still miss my daily dish in spite of the fact that I have been here for one and a half years.

For most Americans and Europeans living here, much of the Arabic and Armenian food is hard to enjoy, some never do eat it. Highly seasoned foods are most popular, but the natives cleverly combine them with leban and lebni. I am thoroughly enjoying this opportunity of learning to like foreign food as well as learning to understand and appreciate how people, other than Americans, live and feel.